

Work Order ID 72511

Wednesday, July 27, 2011 1:02:58 PM



Page 1

Item ID: D6015-125

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Material

Start Date: 7/26/2011 Start Qty: 60.00



Cust Item ID:

Required Date: 11/30/2011 Req'd Qty: 60.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D6015

Rev B

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O

A) Extrude and manufacture as per Dwg D6015

B) Material: AISI 4130 (AMS 6371) seamless steel tube

C) Material certification

110

0.00



Receive & Inspect for Damage & Mat'l Certs

Packaging

Memo

0.00

Packaging

Ensure material certification is attached

120

0.00



QC6- Inspect dimensions to drawing

QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg D6015

11-07-27

(60)

9/2/01/24 (64)

(164)

S. L. L. L. L.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 72511

Wednesday, July 27, 2011 1:02:58 PM



Page 2

Item ID: D6015-125

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Material

Start Date: 7/26/2011 Start Qty: 60.00



Cust Item ID:

Required Date: 11/30/2011 Req'd Qty: 60.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

Chemical Conversion Coat per QSI005 4.1

0.00

u/45

HandFinish

Memo

0.00

Hand Finishing

140

Identify as per dwg & Stock Location:

Back

0.00

Hsu Siskulaf

Packaging

Memo

0.00

Packaging

150

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

OK 12/01/06

#12-01-4
64

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Page 1

Wednesday, July 27, 2011 1:02:55 PM

Work Order ID: 72511

Parent Item: D6015-125

Parent Item Name: Crosstube Material





Start Date: 7/26/2011

Required Date: 11/30/2011

Start Qty: 60.00

Required Qty: 60.00

Comments: IPP Rev:A 11.02.18 new issue DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6015-125P  Crosstube Material		Purchased	No			110	Each	0.0000	1 	60		7/27/11 (64)	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

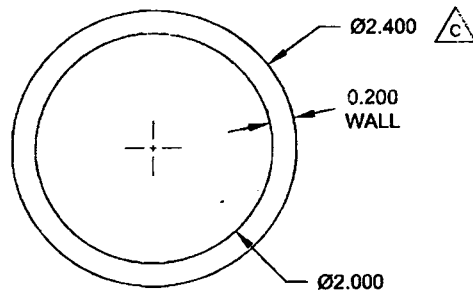
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

SPECIFICATION CONTROL DRAWING

732



NOTES

- 1) D8015-XXX CROSSTUBE
LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 125" LONG TUBE: D6015-125

- 2) MATERIAL: AISI 4130 (AMS 6371) SEAMLESS STEEL TUBE
2.400 OD x 2.000 ID
ANNEALED

- 3) TOLERANCES ARE PER ASTM A519 AS FOLLOWS:
O.D.: +0.007/-0.000
I.D.: +0.000/-0.007
LENGTH: XXX +0.188/-0.000
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH

- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

RELEASED
2011-01-18

C	2.400 WAS 2.500 (C5-1), ODxID WAS ODxWALL (A8-1)	CP	10.11.23
B	REMOVE "NORMALIZED"	CP	08.06.30
A	NEW ISSUE	CP	06.04.18
REV.	DESCRIPTION	BY	DATE
DESIGN	91		
DRAWN	91		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.11.23		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. C
D6015 SHEET 1 OF 1
TITLE SCALE
CROSSTUBE MATERIAL NTS

COPYRIGHT © 2006 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS ISSUED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PO REPRINT

Purchase Order ID PO14591

Purchase Order Date 7/27/2011

PO Print Date 7/27/2011

Page Number 1 of 2

Order From :

VU-FAC001

FACTORY STEEL
14020 OAKLAND AVE.
DETROIT, MI 48203
US

Contact Name

Vendor Phone 313 883 6300

Vendor Fax 313 883 4883

Vendor Account Nbr

Buyer

Requisition Nbr

Tax Resale Nbr 10127-2607

Terms Net 30

Currency USD

FOB Destination-Collect

Ship To :

DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req. Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D6015-125P	Crosstube Material	11/14/2011 Yes	60.00 Each		\$158.0200	\$9,481.20
		Special Inst:	EXTRUDE: AS PER DWG D6017 REV. A B61380 MATERIAL: AISI 4130 (AMS 6371) SEAMLESS STEEL TUBE SIZE: 2.400 OD X 2.000 ID ANNEALED 125" LONG TOLERANCES ARE PER ASTM A519 AS FOLLOWS: O.D: +0.007/-0.000 I.D.: +0.000/-0.007 LENGTH: 115" +0.188/-0.000 STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF TUBE. THE OUTSIDE SURFACE MUST BE				

7/27/2011

PACKING LIST

No. 29778

PG 1 OF 1

PL

FACTORY STEEL & METAL SUPPLY 14020 OAKLAND AVENUE DETROIT, MI 48203 (313)883-6300 PHONE (313)883-4883 FAX	PURCHASE ORDER # 14591		BUYER CHANTEL CLAVOIE Tel (613) 632-3336 Fax (613) 632-4443	SHIP DATE 12/22/2011
	JOB NAME			SHIP VIA ****TRUCK****
	SALES ORDER # 25494	ORDER DATE 07/27/2011	SALES REP MICK HALON	RESALE # 59-2958719
SOLD TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7	SHIP TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7		SHIP INST TRUCK	CARRIER TRUCK
			PRO#	BLIND Y/N N
			TERMS NET 30 DAYS	FOB DETROIT

LINE	PCS	DESCRIPTION	WIDTH	LENGTH	WEIGHT	UNIT PRICE	TOTAL
1	64	PRICE INCLUDES BOXING RD-N.2400200 4130N CD SMLSS RD TUBE 2.400" OD X .200W- Our Tag # Heat # Pcs Total Ft 72446 001M58179 64 666.667 MTRS (CIRCLE) FAX SHIPMENT INVOICE ALL DATE: 12/22/11 INITIAL: MK Bd1 # 1 1,240# Bd1 # 2 1,752#		125"	3,133.334		

TOTAL WT 3,133 LBS							TOTAL
RECEIVED BY - SIGNATURE		RECEIVED BY - PRINTED NAME			DATE RECEIVED		

S0



TEST REPORT

SHIPMENT

5215		MICHIGAN SEAMLESS TUBE		SOUTH LYON, MICHIGAN 48178		001				
ORDER NUMBER	CUSTOMER ORDER NUMBER	DATE	OFC	COM	DIWI	NET SLS	GR SLS	ACCOUNT NUMBER	US	PAGE
050818	1556	07/28/11	22	00	16	16	01	02598001FCO	2ME	1
FACTORY STEEL & METAL SUPPLY 14020 OAKLAND DETROIT MI USA 48203					FACTORY STEEL & METAL SUPPLY 14020 OAKLAND AVENUE DETROIT MI 48203					SN 2 TR 3 INV 3

ROUTING

OPEN TOP/FULLY TARPED/FOB SOUTH LYON MI

PPD TRUCK

ANALYSIS	SHAPE	PRODUCT	FC	ANNEAL	REQUESTED
4130	ROUND	COLD DRAWN		PER SPEC	12/16/11
SPECIFICATION		CMST	DESCRIPTION		PROMISE
SEAMLESS		AMS-6371/A519	CD ALLOY AIRCRAFT		12/16/11

SPECIAL INSTRUCTIONS

OIL DFAR COMP.MARK/CERT A519-96,MILT-6736BN NOTE-2,AMS-6360L,
AMS-6371J,AMS-T-6736AN,4130H.CERT TO AMS-2301J.DECARB LEVELS TO
AMS-6371.PROD FROM 1-HT.80M PSI MIN YLD/AIM 90 PSI.STRT/SURFACE
CRITICAL.NO MARKS.CIRCUMFERENTIAL GRIND MARKS UNACCEPTABLE.KERF
+.188"/-0.QTY VAR +10%/-0.MARK TO INCL GRADE & ALL SPECS.BOXED.

ITEM	QUANTITY	O.D.	I.D.	WALL	LENGTH	WT/FT	WEIGHT	
		2.400	2.000			4.699		10:19:55
		+.0070	+.0000					12/15/11
		-.0000	-.0070					

ITM	BALE	--BALE--				ITM	PART
NUM	NUM	PCS	FTG	HEAT NO.	LENGTH	STATUS	NUMBER
1	1 2	32	333	001M58179	CUT 10' 5.000"	COM	
1	2 2	32	333	001M58179	CUT 10' 5.000"	COM	

Size/len

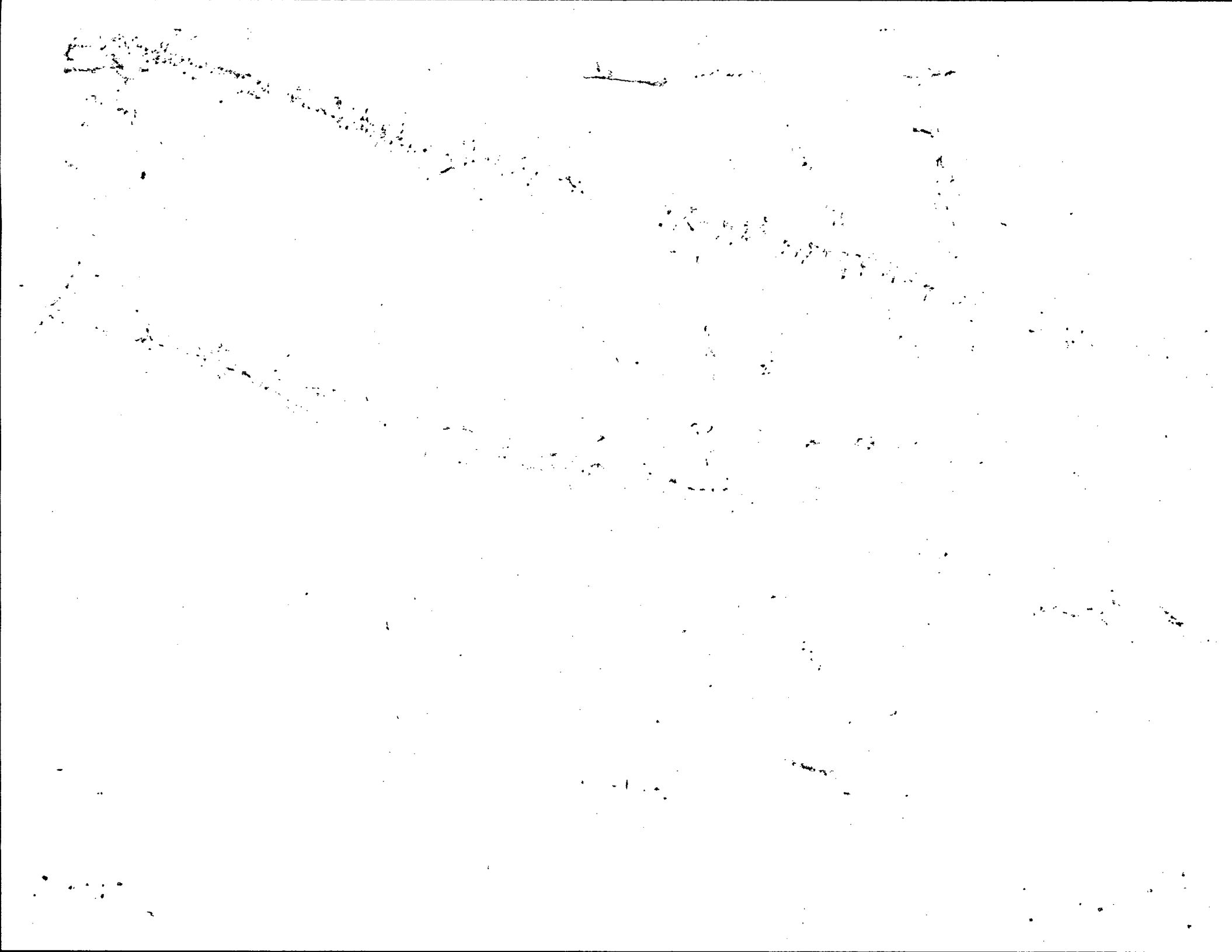
HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Al	REMARKS
001M58179	.290	.560	.012	.012	.220	.120	1.020	.170	.270	.020	EF GERDAU

HEAT NO.	ULT. STR. PSI	YIELD, PSI	% ELONG	HARDNESS	HYDRO TEST PSI	ULTRA SONIC %	EDDY CURRENT	EXPANSION
001M58179	107,488	90,000	18.7	HBW 226-226			OK	
					BEND	FLATTEN	FLARE	REV. FLATTEN
								FLANGE

DECARB OK GRAIN SIZE 8
FREQ 0.00 SEV 0.00
MACROS S1 R1 C1
J1 J2 J3 J4 J5 J6 J7 J8 J9 J10
52 50 48 46 41 38 36 34 31 31
MELTED & MANUFACTURED IN USA

We hereby certify that the reported data are correct according to Michigan Seamless Tube tests and those of its suppliers.

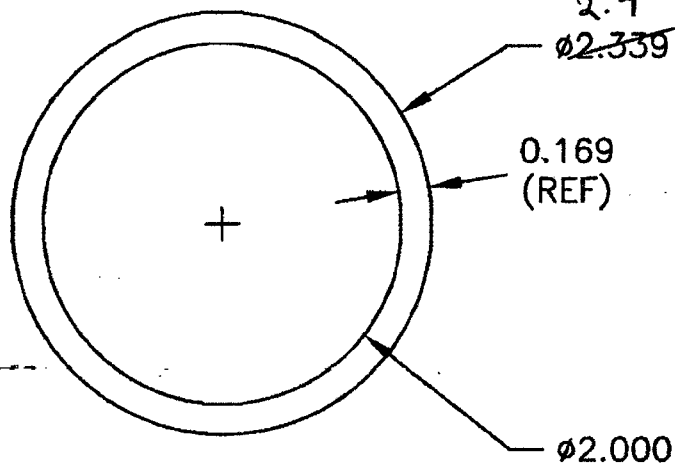
8.2.P8.F9 Rev 0



DART

DESIGN <i>Q</i>	DRAWN BY <i>Q</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>A</i>	APPROVED <i>A</i>	DRAWING NO. D6017	REV. A SHEET 1 OF 1
DATE 06.06.30		TITLE CROSSTUBE MATERIAL	SCALE 1:1
A	06.06.30	NEW ISSUE	

SPECIFICATION CONTROL DRAWING



NOTES

- 1) D6017-XXX CROSSTUBE
LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 115" LONG TUBE: D6017-115 125"

- 2) MATERIAL: AISI 4130 (AMS 6371) SEAMLESS STEEL TUBE
2.339 OD x 2.000 ID
ANNEALED

- 3) TOLERANCES ARE PER ASTM A519 AS FOLLOWS:

O.D.: +0.007/-0.000

I.D.: +0.000/-0.007

LENGTH: XXX +0.188/-0.000

STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH

- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

RELEASED

06.08.15

Copyright © 2006 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

